

Project Name: Mealybug Efficacy

New	Ongoing	X	Completed	Duration if ongoing or completed:	2004, 2005 2008 – 2012, 2018 -2021
------------	----------------	---	------------------	--	--

Project Description:

During the 2003 IR-4 Environmental Horticulture Workshop certain studies were designated “Super A” to start devoting time and resources to groups of studies with the same general goal. Researching new and existing pest management tools for mealybugs was one set. This concept then morphed into high priority projects. Mealybugs, particularly newly invasive species, present difficulties for growers and landscape managers. While there are several tools in different classes, product efficacy is often unknown for newly invasive species or on mealybugs of new ornamental horticulture crops. Screening for mealybug efficacy initially occurred in 2004 and 2005 and then began again in 2008 with experiments continuing through 2012. At the 2017 Workshop, mealybugs and scale once again became a high priority project.

Research Project Abstract (if available):

Excerpted Abstract from 2020 Scale & Mealybug Efficacy Summary
 Managing scale and mealybug insects presents unique challenges. Products with contact modes of action must be applied at specific timings in order to reach the most susceptible crawler stages. Products with systemic modes of action may work well for certain species and not others based on application timing and whether the insect feeds within phloem or xylem. In 2003, IR-4 initiated a high priority project to determine efficacy of several insecticides on several scale and mealybug species so data can be obtained to add appropriate species to existing registrations. This research was conducted between 2004 and 2020. This report is a brief summary of available data from 94 experiments received through the IR-4 Environmental Horticulture Program. All products tested on citrus mealybug and Mexican mealybug, including Aria, Flagship, Safari, Talus, and TriStar, generally provided good to excellent control of these species. An experiment on Madeira mealybug showed excellent control when TriStar was mixed with Capsil surfactant, and poor control without Capsil. Rycar, Safari and Talus provided good to excellent control of this species, while A16901B provided mediocre control when applied as drench but good when applied as foliar treatment. Pradia and Ventigra also provided excellent control of Madeira mealybug. Phormium mealybug control was good to excellent with all neonicotinoids tested – Flagship, Safari and TriStar. Good to excellent control of Rhizoecus root mealybug was obtained with A16901B, Aria, Kontos, MBI-203, MBI-205 and Safari in single experiments. ISM555 provided good control of crapemyrtle bark scale and Madeira mealybug, while SP3014 provided good control of Madeira mealybug, in single trials.

Target Species (Phytotoxicity, or common and Latin name of arthropod, pathogen, weed):

Citrus Mealybug (<i>Planococcus citri</i>)	Miscanthus Mealybug (<i>Miscanthiococcus miscanthi</i>)
Madeira Mealybug (<i>Phenacoccus madeirensis</i>)	Phormium Mealybug (<i>Balanococcus diminutus</i>)
Mexican Mealybug (<i>Phenacoccus gossypii</i>)	Root Mealybug, Hibiscus (<i>Rhizoecus hibisci</i>)

Target Crops (list tested crops if ongoing or completed project)

Coleus, Flamenettle (<i>Coleus/Plectranthus sp.</i>)	Parapara or Birdcatcher tree (<i>Pisonia brunoniana</i>)
Marigold (<i>Tagetes sp.</i>)	Palm, Guangxi Lady (<i>Rhapis robusta</i>)
Silvergrass, Japanese (<i>Miscanthus sinensis</i>)	Rose (<i>Rosa sp.</i>)
New Zealand Flax (<i>Phormium sp.</i>)	Zinnia (<i>Zinnia sp.</i>)

Target Product(s)(list tested products or numbered compounds if ongoing or completed project)		
A16901B 45WG	ISM-555	Safari 20SG
Acelepryn (Dupont)	KOC22018-8	Safari 2G
Altus	Kontos (BYI 8330 240SC)	Sarisa 50SL
Aria 50SG	Mainspring GNL 200SC	SP3014
AzaGuard	Marathon II	SuffOil X (Synergy)
BW133	MBI 203 SC2	Talstar NF
BW238 ES	MBI 205	Talus 40SC
BW238 WP	MBI 306	Talus 70DF
Chlorpyrifos 2.32%	Merit 75WP	TetraCURB Concentrate
Distance	Mesuroil 75-W	TetraCURB Organic
DuraGuard	Natural Solutions - V. lecanii	TriStar 30SG
Flagship 0.22G	Orthene TTO 97 (Valent)	TriStar 70WSP
Flagship 25WG	Pradia	Ultra Pure Oil (BASF)
Grandevo (MBI 203 DF)	Precise Acephate	V-10433
Hachi-Hachi EC	QRD 400	Velifer
Horticultural Oil	Rycar	Ventigra Insecticide

Product Registration and Research Status			
	Fully Screened (also includes standards)	Partially Screened through IR-4 ¹	Need Data for AdditionalSpecies ?
Labeled for Mealybugs Generally & Commercialized	Flagship 25WG Onyx Orthene TTO Precise Acephate Scimitar CS Sun Spray Ultra-Fine oil Talstar NF Talus 40SC Talus 70DF Ultra Pure Oil	Aria 20SG Distance Flagship 0.22G Grandevo (MBI203) DF Kontos Pradia Safari 20SG * Sarisa	Arena 50WDG Botanigard 22WP BotaniGard MAXX EcoTrol Marathon II M-Pede Naturalis L Preferal Rycar * Safari 2G SuffOil X TriStar 30SG Xxpire
Labeled for Mealybugs Generally But NOT Commercialized			
Labeled for Specific Mealybugs & Commercialized			
Labeled for Specific Mealybugs but NOT Commercialized			
Not yet registered or labeled for Mealybugs		A16901B	Hachi-Hachi <i>Verticillium lecanii</i>
No longer available for development for Mealybugs	Acelepryn QRD 400		
* IR-4 Data contributed to registration decision – either adding pest to label or not pursuing further research			
1 At least one species screened fully			
2 Product not available for production ornamentals			

Area	Characteristic	Pro	Con
Availability & effectiveness of alternative management tools	Very few new tools for screening		x
Damage potential of target			
Performance and crop safety of proposed products (from other systems)	Mealybugs tend to be managed well with a few exceptions Several IRAC classes are available for resistance management		X
Compatibility with IPM, resistance management programs			
Economics			
Geographic distribution			
Manufacturer interest in labeling products			
Other			

IR-4 Efficacy Trials to Date

Average rating on a scale of 1 – 5 with 1 = 0 to about 50% efficacy (not effective) and 5 = 95 to 100 efficacy (very effective); minimum to maximum rating; number of trials (See table on next page). For product/insect combinations that are blank, IR-4 has not screened this combination.

'Labeled' indicates that this insect species or genera is listed on the label. A rating of 2 or lower is considered unacceptable efficacy (*red text*). A rating of 3 or higher is considered commercially acceptable (black text). Non-labeled, completed product/insect combinations (3 or more trials) with an average rating of 3 or higher are highlighted with *green text*. For insect/product combinations that are blank, IR-4 has not screened this combination.

MOA	Product (Active Ingredients)	Phormium Mealybug (<i>Balanococcus diminutus</i>)	Citrus Mealybug (<i>Planococcus citri</i>)	Madeira Mealybug (<i>Phenacoccus madeirensis</i>)	Mexican Mealybug (<i>Phenacoccus gossypii</i>)	Rhizoecus hibisci (<i>Rhizoecus hibisci</i>)
IRAC 1A	Mesurool 75-W (Methicarb)		3.0 (3 - 3) n1			
IRAC 1B	DuraGuard (Chlorpyrifos)		1.0 (1 - 1) n1			
	Orthene TTO 97 (Valent) (Acephate)			5.0 (5 - 5) n4 Labeled	5.0 (5 - 5) n1 Labeled	1.0 (1 - 1) n1 Labeled
	Precise Acephate (Acephate)	1.0 (1 - 1) n1 Labeled				
IRAC 3A	Talstar NF (Bifenthrin)		3.0 (3 - 3) n2 Labeled			
IRAC 4A	Flagship 0.22G (Thiamethoxam)			2.5 (1 - 3) n4 Labeled		
	Flagship 25WG (Thiamethoxam)	4.0 (4 - 4) n1 Labeled	4.4 (4 - 5) n5 Labeled	3.6 (2 - 5) n5 Labeled	4.0 (4 - 4) n1 Labeled	
	Marathon II (Imidacloprid)		1.0 (1 - 1) n2 Labeled			
	Merit 75WP (Imidacloprid)			1.0 (1 - 1) n1		
	Safari 20SG (Dinotefuran)	5.0 (5 - 5) n2 Labeled	3.8 (1 - 5) n8 Labeled	4.0 (2 - 5) n6 Labeled	5.0 (5 - 5) n1 Labeled	4.5 (4 - 5) n2 Labeled
	Safari 2G (Dinotefuran)			4.0 (2 - 5) n3 Labeled		
	TriStar 30SG (Acetamiprid)		5.0 (5 - 5) n1 Labeled	4.5 (4 - 5) n2 Labeled	5.0 (5 - 5) n1 Labeled	
TriStar 70WSP (Acetamiprid)	4.0 (4 - 4) n1 Labeled	5.0 (5 - 5) n4 Labeled	4.0 (4 - 4) n1 Labeled			
IRAC 4A + IRAC 28	A16901B 45WG (Thiamethoxam + cyantraniliprole)		4.5 (4 - 5) n2 Labeled	3.0 (1 - 5) n6 Labeled		5.0 (5 - 5) n1 Labeled
IRAC 4D	Altus (Flupyradifurone)		2.0 (1 - 3) n2 Labeled	2.0 (1 - 3) n3 Labeled		
IRAC 7C	Distance (Pyriproxyfen)		2.3 (1 - 3) n3 Labeled	2.7 (1 - 4) n3 Labeled		
IRAC 9B	Rycar (Pyrifluquinazon)		5.0 (5 - 5) n1 Labeled	3.3 (2 - 5) n3 Labeled		
IRAC 9D	Ventigra Insecticide (Afidopyropen)		2.0 (2 - 2) n2 Labeled	4.7 (4 - 5) n3 Labeled		
IRAC 16	Talus 40SC (Buprofezin)		3.8 (3 - 4) n5 Labeled	5.0 (5 - 5) n1 Labeled	5.0 (5 - 5) n1 Labeled	

MOA	Product (Active Ingredients)	Phormium Mealybug (<i>Balanococcus diminutus</i>)	Citrus Mealybug (<i>Planococcus citri</i>)	Madeira Mealybug (<i>Phenacoccus madeirensis</i>)	Mexican Mealybug (<i>Phenacoccus gossypii</i>)	Rhizoecus hibisci (<i>Rhizoecus hibisci</i>)
IRAC 16	Talus 70DF (Buprofezin)		3.3 (2 - 5) n3 Labeled	4.5 (4 - 5) n4 Labeled		
IRAC 21A	Hachi-Hachi EC (Tolfenpyrad)			5.0 (5 - 5) n1		
IRAC 23	Kontos (BYI 8330 240SC) (Spirotetramat)		1.5 (1 - 2) n2 Labeled	4.3 (2 - 5) n4 Labeled		3.8 (3 - 5) n4 Labeled
IRAC 28	Acelepryn (Dupont) (Chlorantraniliprole)					1.0 (1 - 1) n1
	Mainspring GNL 200SC (Cyantraniliprole)			1.0 (1 - 1) n1		
	Sarisa 50SL (Cyclaniliprole)		1.5 (1 - 2) n2 Labeled	1.0 (1 - 1) n3 Labeled		
IRAC 28 + IRAC 29	Pradia (Cyclaniliprole + Flonicamid)		3.5 (2 - 5) n2	4.7 (4 - 5) n3		
IRAC 29	Aria 50SG (Flonicamid)		3.0 (1 - 5) n3 Labeled		5.0 (5 - 5) n1 Labeled	4.0 (4 - 4) n1 Labeled
FRAC NC	BW133 (BW133)		4.0 (3 - 5) n2			
	Grandevo (MBI 203 DF) (Chromobacterium subtsugae NRRL B-30655)		1.0 (1 - 1) n1 Labeled	1.0 (1 - 1) n1 Labeled		4.0 (4 - 4) n1 Labeled
	Horticultural Oil (Horticultural Oil)			5.0 (5 - 5) n1		
	SuffOil X (Synergy) (Petroleum Oil)			3.0 (3 - 3) n1 Labeled		
	Ultra Pure Oil (BASF) (Petroleum Oil)		1.5 (1 - 2) n2			
IRAC UN	AzaGuard (Azadirachtin)		1.5 (1 - 2) n2	2.0 (1 - 3) n2		
IRAC UNE	QRD 400 (Extract of Chenopodium ambrosioides)		1.5 (1 - 2) n2	3.0 (3 - 3) n1		
	TetraCURB Concentrate (Rosemary Oil)		5.0 (5 - 5) n1	2.0 (1 - 3) n2		
	TetraCURB Organic (Rosemary Oil)		1.0 (1 - 1) n1	2.0 (1 - 3) n2		
IRAC UNF	Velifer (Beauveria bassiana strain PPRI 5339)		1.0 (1 - 1) n1			
unknown	BW238 ES (BW238 ES)		1.0 (1 - 1) n1			
unknown	BW238 WP (BW238 WP)		1.0 (1 - 1) n1			
unknown	ISM-555 (ISM-555, A21377X)		4.5 (4 - 5) n2			

MOA	Product (Active Ingredients)	Phormium Mealybug (<i>Balanococcus diminutus</i>)	Citrus Mealybug (<i>Planococcus citri</i>)	Madeira Mealybug (<i>Phenacoccus madeirensis</i>)	Mexican Mealybug (<i>Phenacoccus gossypii</i>)	Rhizoecus hibisci (<i>Rhizoecus hibisci</i>)
unknown	KOC22018-8 (Botanical Oil Blend)		3.0 (3 - 3) n1	2.0 (1 - 3) n2		
unknown	MBI 203 SC2 (MBI 203)		1.0 (1 - 1) n2			
unknown	MBI 205 (MBI 205)		2.0 (2 - 2) n1	5.0 (5 - 5) n1		2.0 (2 - 2) n1
unknown	MBI 306 (MBI 306)		1.0 (1 - 1) n2			
unknown	Natural Solutions - <i>V. lecanii</i> (<i>Verticillium lecanii</i>)		3.0 (3 - 3) n1			
unknown	RTSA 721 (RTSA 721)		2.0 (2 - 2) n1			
unknown	SP3014 (SP3014)		3.0 (3 - 3) n2			
unknown	V-10433 (V-10433)		1.0 (1 - 1) n2			

IRAC Class	Foliar Applied Insecticides (active ingredients)	Registered Use Site(s)	Knock Down	Residual Control (days)	REI	Mealybug Efficacy					Life Stages		
						<i>Belanococcus diminitus</i>	<i>Phenacoccus gossypii</i>	<i>Phenacoccus madeirensis</i>	<i>Planococcus citri</i>	<i>Rhizoecus hibisci</i>	Immatures	Pupae	Adults
1B	Cygon, Dimethoate (dimethoate)	N	F	5-7?	48 h	-	-	-	-	-	x	-	x
	Duraguard, Dursban (chlorpyrifos)	G, N	F	5-7	24 h	-	-	C	-	-	x	-	x
	Malathion	G, N	F	5-7	12 h	-	-	-	-	-	x	-	x
	Orthene T&O, Acephate 97 UP, Precision (acephate)	G, N	F	7	24 h	-	E	E	-	-	x	-	x
	Supracide (methidathion)	N	F	-	48 h	-	-	-	-	-	x	-	x
3A	Astro, Permethrin.Pro, etc. (permethrin)	G, I	F	5-7	12 h	-	-	-	-	-	x	-	x
	Decathlon (cyfluthrin)	G, I, N	F	7	12 h	-	-	-	-	-	x	-	x
	Mavrik (fluvalinate)	G, I, N	F	14	12 h	-	-	-	-	-	x	-	x
	Scimitar GC (lambda-cyhalothrin)	G, N, S	F	7	24 h	-	-	-	-	-	x	-	x
	Talstar, Onyx (bifenthrin)	G, I, N	F	7	12 h	-	-	-	G	-	x	-	x
	Tame (fenpropathrin)	G, I, L, N, S	F	7	24 h	-	-	-	-	-	x	-	x
3A + -	Prentox Pyronyl Crop Spray, Pyrenone Crop Spray etc. (pyrethrins + PBO)	G, N	F	Contact	12 h	-	-	-	-	-	x	-	x
3A + 4A	Discus (cyfluthrin+imidacloprid)	N	F	5-7	12 h	-	-	-	-	-	x	-	x
4A	Flagship 25WG (thiamethoxam)	G, I, L, N, S	F	7-14	12 h	G	G-E	G-E	G-E	?	x	-	x
	Marathon, Merit (imidacloprid)	G, I, N	F	-	12 h	-	-	-	P-F	-	x	-	x
	Safari 20SG (dinotefuran)	G, N	M	7	12 h	E	E	F-E	G-E	G-E	x	-	x
	TriStar (acetamiprid)	G, L, N, S	F	-	12 h	-	E	G	E	-	x	-	x
4D	Altus, BYI-2960 (flupyradifurone)	G, I, L, N, S	-	-	4 h ^a	-	-	P-F	P	-	x	-	x
5	Conserve SC, Entrust (spinosad)	G, L, N, S	F	5	4 h	-	-	-	-	-	x	-	x
5+4C	XXpire (spinetoram+sulfoxaflor)	G, N	F	14	12 h	-	-	-	-	-	x	-	-
7A	Enstar AQ (kinoprene)	G, I, L, S	S	-	4 h	-	-	-	-	-	x	-	x
7D	Distance (pyriproxyfen)	G, I, L, S	S	-	12 h	-	-	G	P-E	-	x	x	-
9B	Rycar, NNI-0101 (pyrifluquinazon)	G	-	10	12 h	-	-	F-E	E	-	x	-	x
9D	Ventigra, BAS 440 (afidopyropen)	G, I, L, N, S	-	7	12 h	-	-	G-E	F-E	-	x	-	x
16	Talus (buprofezin)	G, L, N, S	S	14	12 h	-	E	G-E	F-G	-	x	-	x
18B	Aza-Direct, Molt-X, etc. (azadirachtin)	G, I, N, S	S	7	4 h	-	-	G	P	-	x	-	-
18B	Triact, Trilogy Neem Oil (extract of neem oil)	G, N	S	7	4 h	-	-	-	-	-	x	-	-
21A	Hachi-Hachi EC (tolfenpyrad)	G	F	7-14	12 h	-	-	G	-	-	x	-	x
23	Judo (spiromesifen)	G, N, S	M	7	12 h	-	-	-	-	-	x	-	x
	Kontos, BYI-8330 (spirotetramat)	G, I, N	S	7-14	24 h	-	-	E	F-G	G	x	-	x
28	Mainspring, A20520A, DPX-HGW86 (cyantraniliprole)	G, I	F	-	4 h	-	-	-	-	-	-	-	-
	Sarisa, IKI-3106 (cyclaniliprole)	G, N, S	M	7	4 h	-	-	P	P	-	x	-	x
28 + 29	Pradia (cyclaniliprole + flonicamid)	G, N, S	-	7	12 h	-	-	G-E	F-E	-	x	-	x
29	Aria (flonicamid)	G, I, N	M	7-14	12 h	-	E	-	G-E	G	x	-	x
UNE	Venerate, MBI-206 (<i>Burkholderia</i> sp. strain A396)	G, N	S	3-10	4h	-	-	-	-	-	x	-	x

IRAC Class	Foliar Applied Insecticides (active ingredients)	Registered Use Site(s)	Knock Down	Residual Control (days)	REI	Mealybug Efficacy					Life Stages		
						<i>Belanococcus diminitus</i>	<i>Phenacoccus gossypii</i>	<i>Phenacoccus madeirensis</i>	<i>Planococcus citri</i>	<i>Rhizoecus hibisci</i>	Immatures	Pupae	Adults
UNF	BotaniGard, Mycotrol, (<i>Beauveria bassiana</i> strain GHA)	G, I, N, S	M	3	4 h	-	-	-	-	-	x	x	x
	Met 52, Tick Ex (<i>Metarhizium anisopliae</i> F52)	G, N	M	5-7	4 h	-	-	-	-	-	x	-	x
	NoFly WP (<i>Paecilomyces fumosoroseus</i> strain FE 9901)	G	M	3-7	4 h	-	-	-	-	-	x	-	x
	Preferal, PFR-97 (<i>Isaria fumosoroseus</i>)	G, L, N, S	S	Contact	4 h	-	-	-	-	-	x	-	x
	Velifer (<i>Beauveria bassiana</i> strain PPRI 5339)	G	M	3	12 h	-	-	-	P	-	-	-	-
UNF + 3A	BotaniGard MAXX (<i>Beauveria bassiana</i> + pyrethrins)	G, I, N, S	F	-	12 h	-	-	-	-	-	x	x	x
UNE	Ecotec, Ecotrol (rosemary and peppermint oils)	G, N	-	-	-	-	-	-	-	-	x	-	x
	M-Pede, Safer Soap (potassium salts of fatty acids)	G, I, N	F	Contact	12 h	-	-	-	-	-	x	-	-
	TetraCURB Org (rosemary oil)	TBD	-	-	-	-	-	P	-	-	-	-	-
UNM	Surround WP (kaolin)	G	-	Contact	4 h	-	-	-	-	-	x	-	x
	Ultra pure oil, SuffOil-X, etc. (paraffinic oil)	G, N	F	Contact	4 h	-	-	G-E	P-F	E	x	x	x
-	Grandevo, MBI-203 DF (<i>Chromobacterium subsugae</i> strain PRAA4-1 ^T)	G, N	S	-	4 h	-	-	P	P	G	x	-	x
-	Sorbishield 90 (sorbitol octanoate)	G, N	-	Contact	24 h	-	-	-	-	-	x	-	x
-	Sucrashield (sucrose octanoate)	G, N	-	Contact	48 h	-	-	-	-	-	x	-	x
Experimental Products													
28 + 4A	A16901B (cyantraniliprole + thiamethoxam)	TBD	F	-	-	-	-	P-E	G-E	E	x	-	x
3A + 4A	Aloft (bifenthrin + clothianidin)	TBD	F	-	12 h	-	-	-	-	-	x	-	x
4A	Arena, Celero 16WG (clothianidin)	TBD	-	-	12 h	-	-	-	-	-	x	-	x
-	BW133 (BW133)	TBD	-	-	-	-	-	-	G-E	-	-	-	-
-	BW238 (BW238 ES)	TBD	-	-	-	-	-	-	P	-	-	-	-
-	BW238 (BW238 WP)	TBD	-	-	-	-	-	-	P	-	-	-	-
-	Facin (<i>Chenopodium ambrosioides</i>)	TBD	-	-	-	-	-	-	-	-	x	-	x
-	ISM-555(ISM-555, A21377X)	TBD	-	-	-	-	-	-	G-E	-	-	-	-
-	KOC22018-8 (botanical oil blend)	TBD	-	-	-	-	-	-	-	-	-	-	-
-	MBI 203 SC2 (MBI 203)	TBD	-	-	-	-	-	-	P	-	-	-	-
-	MBI 306(MBI 306)	TBD	-	-	-	-	-	-	P	-	-	-	-
-	RTSA-721 (RTSA-721)	TBD	-	-	-	-	-	-	F	-	-	-	-
-	SP 3014 (SP 3014)	TBD	-	-	-	-	-	-	G-E	-	-	-	-
4C	Transform, GF-2626 1SC (sulfoxaflor)	TBD	-	-	24 h	-	-	-	-	-	x	-	x
NC	Milstop ^b (potassium bicarbonate)	G, I, L, N, S	-	-	1 h	-	-	-	-	-	x	-	-
-	QRD 416 (oil extract from <i>Chenopodium</i> sp.) ^b	TBD	-	-	-	-	-	G	P-F	-	x	-	x
-	V-10433 (V-10433)	TBD	-	-	-	-	-	-	P	-	-	-	-

Registered Use Sites: G = Greenhouse; L = Lath House; I = Indoors; N = Nursery; S = Shade House; TBD = To Be Determined

Knockdown: Fast (< 1 day), Medium (1-7 days), Slow (>7 days).



Registered and Experimental Products for Mealybug Management

Page 3 of 3

Efficacy: P = Poor (< 70% control); F = Fair (70% to 85% control); G = Good (85% to 95% control), E = Excellent (>95% control) on immatures and/or adults 1 to 3 weeks after first app.

Residual Control taken from product technical and label info, recommendations on earliest application intervals; Scale Efficacy taken from the 2017 IR-4 efficacy summary, 4 other IR-4 trials, and 7 AMT reports. Effect on biological control agents for scales/mealybugs taken from Koppert, Biobest and some extension publications/recommendations.

* Results of efficacy trials have been variable for entomopathogens and impact on beneficial organisms is presumed to be less than that of traditional pesticide chemistries but the data are sparse.

** This insecticide is toxic to many BCA's but has a short residual and may be suitable for treating hot spots and re-introducing BCA's soon thereafter.

^a 12 h in California

^b Milstop has a New York 2ee recommendation to control mealybugs, aphids, spider mites, stink bugs and whiteflies.

Updated 9/20/21